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#### ABSTRACT

0037     A method for treating a gate structure comprising a high-K gate dielectric stack to improve electric performance characteristics including providing a gate dielectric layer stack including a binary oxide over a silicon substrate; forming a polysilicon layer over the gate dielectric layer stack; lithographically patterning and etching to form a gate structure; and, carrying out at least one plasma treatment of the gate structure comprising a plasma source gas selected from the group consisting of H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, and NH<sub>3</sub>.